

Original Research

Health-Related Quality of Life Measurement in Patients Admitted with Coronary Heart Disease and Heart Failure to a Cardiology Department of a Secondary Urban Hospital in Greece

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Key words:

Health-related quality of life, coronary heart disease, heart failure, SF-36, EQ-5D, conservative therapy.

Introduction: The aim of this study was to measure the quality of life in patients with coronary heart disease and heart failure, who make up the majority of admissions to an acute hospital cardiology unit.

Methods: The study was undertaken in the General Hospital of Agios Nikolaos, Crete, and recruited 153 patients. The SF-36 and EQ-5D questionnaires were administered to evaluate health-related quality of life at hospital admission, discharge and one month after the discharge date.

Results: The analysis indicates that the quality of life of coronary disease patients is quite low and improved very marginally between admission and one month post discharge. The same applies for heart failure patients, who are associated with even lower quality of life scores.

Conclusion: As illness affects all aspects of life, such as physical functioning, emotional balance, social role and general wellbeing, measurement of quality of life is considered to be an important factor in the assessment of the objective and subjective status of the individual's health. It appears in this context that patients with cardiac conditions suffer a significant deterioration in their quality of life status.

Manuscript received:

February 11, 2008;

Accepted:

April 9, 2008.

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Coronary heart disease (CHD) and heart failure (HF) represent leading causes of morbidity and mortality worldwide, imposing a significant economic burden upon societies.¹ However, apart from their clinical and economic implications they also have a significant impact on the quality of life of those suffering from these conditions. Health related quality of life (HRQL) is often assessed in studies to be as important as quantity of life. It is a multi-dimensional element of wellbeing, affected by the physical, mental, emotional and social status of patients, which is increasingly used to assess the health status of patients or the general public, as well as the consequences of healthcare interventions.^{2,3}

Assessment of HRQL is a particularly interesting endeavour in patients with coronary heart disease and heart failure, as these conditions often have a significant impact on physical, social and mental domains which determine the patients' overall wellbeing and status. Specifically, patients with CHD usually experience angina, limited exercise capacity and psychological stress, and they may also suffer from fatigue and sleep problems. Also, it has been estimated that one third of patients suffer from major depression and a large proportion from subclinical depression.⁴ Thus, the latest therapeutic schemes focus on symptom management, as well as on improvement in both functional capacity and quality of life.^{5,6}

On the other hand, HF is also becoming a common medical condition with an increasing incidence and, unfortunately, very poor prognosis. HF is accompanied by fatigue, dyspnoea and restricted physical activity, which adversely affect several domains of quality of life. In this context, the improvement of quality of life is a very important objective in the management of patients suffering from HF.^{7,8} It is notable that, in the context of a recent study, half of the patients preferred to undergo the treatment that would improve their quality of life, even if that choice could shorten their life expectancy.⁹ Other studies have also shown that quality of life improvements in this type of patient ensure better compliance with therapeutic requirements.¹⁰

Hence, quality of life measurement is important in order to assess the status of CHD and HF patients and their progress over time following the provision of medical care. Given the increasing trend in the number of CHD and HF patients in Greece, the gain for society from the better management of quality of life may be substantial.

The aim of the present study was to measure HRQL in patients suffering from CHD or HF. There are many generic and disease-specific instruments that capture quality of life and they have seen numerous applications in various conditions and settings.^{11,12} In the present study we employed two widely used generic instruments to pursue a self assessment of quality of life in patients recruited in single medical centre in Greece.

Methods

This is an observational study which recruited 153 patients who were admitted to the Cardiology Department of the General Hospital of Agios Nikolaos, Crete, with a diagnosis of CHD or HF. The study was initiated in September 2005 and completed in April 2006. Two widely accepted and frequently applied generic HRQL instruments, the Short Form 36 (SF-36) and EuroQol 5-dimensional (EQ-5D), were employed for the self-assessment of the patients' quality of life. The questionnaires were completed at three specific time points: during patient admission (phase A), when patients were discharged from the hospital (phase B), and one month after their discharge date (phase C). In the first two assessments the instruments were completed at the hospital by means of personal interviews, whilst the last assessment was conducted over the phone. Additionally, information on demographic characteristics, such as age, marital status, educational level and occupational

status of subjects was collected. All patients gave their informed consent to participation in the study.

The mean score of SF-36 dimensions was measured according to the SF-36 v. 1.0 measurement standards. The evaluation of EQ-5D questionnaires was based on the Dolan-N3 additional model. The data were analysed using SPSS software, release 11.0. Descriptive and correlation analysis, comparison of means and analysis of variance were conducted. Contingency tables were constructed to examine for significant correlations between questionnaires.

Results

During hospital admission (phase A), 104 questionnaires from patients with CHD and 49 questionnaires from patients with HF were completed. The demographic characteristics of the two patient groups are shown in Table 1. In the CHD and HF groups 60% and 57% of patients, respectively, were male; 74% and 82%, respectively, were above the age of 65, and 76% and 86% had only elementary education, whilst 76% and 84% had retired from work.

After excluding 6 patients with CHD who died or were transferred and admitted to a tertiary hospital due to severe deterioration in their health status, 98 (94%) subjects were available at discharge (phase B) and 94 (91%) at one month post discharge (phase C). For similar reasons, in the HF patient group 47 (96%) participants remained in phases B and C. The mean scores of the eight SF-36 dimensions are shown in Table 2 and Figure 1 for CHD and HF patients, respectively. It is notable that all mean scores for both patient groups are very low and the mean scores of HF patients are lower than those of CHD patients.

Specifically, in both patient groups quality of life scores are below 60 and range down to 30. The quality of life dimensions Physical Functioning, Role Physical, General Health, and Role Emotional, are lower than the dimensions of Social Functioning, Bodily Pain, Vitality and Mental Health, in both groups. This implies that the conditions affect the physical status of patients even more than their social and mental status and their bodily pain.

In both groups of patients there was a slight, but not statistically significant improvement between admission and one month post discharge in all dimensions of quality of life. The overall physical component summary for CHD patients was 29.22 in phase A, 40.28 in phase B and 43.09 in phase C, which indicates an improvement. The overall mental compo-

Table 1. Patients' demographic data.

Characteristic	CHD: N (%)	HF: N (%)
Sex:		
Men	62 (60)	28 (57)
Women	42 (40)	21 (43)
Age:		
35-44 years	3 (3)	0 (0)
45-54 years	8 (8)	2 (4)
55-64 years	16 (15)	7 (14)
65-74 years	37 (36)	11 (22)
> 74 years	40 (38)	29 (60)
Marital status:		
Married	81 (77)	39 (80)
Widowed	19 (18)	9 (18)
Divorced	2 (2)	0 (0)
Single	2 (2)	1 (2)
Educational level:		
Elementary	79 (76)	42 (86)
Public	22 (21)	7 (14)
Technological	2 (2)	0 (0)
College or higher	1 (1)	0 (0)
Occupational status:		
Retired	79 (76)	40 (84)
Full-time	19 (18)	8 (16)
Part-time	4 (4)	1 (2)
Income:		
< €3,000	43 (41)	28 (57)
€3,000-10,000	29 (28)	11 (22)
€10,000-30,000	3 (3)	0 (0)
> €30,000	0 (0)	0 (0)
Not answered	29 (28)	10 (20)

CHD – coronary heart disease; HF – heart failure.

ment summary for CHD patients was 47.73 in phase A, 49.32 in phase B and 50.62 in phase C, which indicates stability. The overall physical component summary for HF patients was 34.60 in phase A, 35.65 in phase B and 37.46 in phase C, showing a marginal improvement and the overall mental component summary

was 45.59 in phase A, 45.58 in phase B and 47.16 in phase C, indicating stability. Thus, CHD and HF patients experience a slight, but not statistically significant improvement in their physical status only. It remains, though, to be assessed whether this improvement is significant in terms of clinical and functional status, and quality of life.

Table 3 and Figure 2 report the EQ-5D Index score and the Visual Analogue Scale (VAS) score per phase and patient group. The results are in line with those obtained from the SF-36 instrument and they indicate a poor quality of life status and moderate improvements after treatment. It is notable that EQ-5D appears to be more sensitive compared to the VAS.

Statistical analysis revealed strong positive and statistically significant correlations between the SF-36, the EQ-5D Index and the VAS at all stages of the evaluation. These indicate that the instruments are equally effective in capturing the HRQL of patients and its evolution over time.

Discussion

In the present study the health-related quality of life in patients with CHD and HF was evaluated using two generic measurement instruments before and after hospitalisation and the provision of conservative treatment. Both patient groups had low SF-36 and EQ-5D mean scores. HF patients had lower mean scores than CHD patients, due to the disease severity and worse prognosis of HF. A slight, but not statistically significant improvement was measured in phase B as well as in phase C for both patient groups, probably as a result of the treatment scheme and the care provided.

CHD is a major cause of mortality and morbidity, which affects the physical, mental and social status

Table 2. Mean Short Form 36 (SF-36) scores according to time and disease.

Phase	CHD			HF		
	A	B	C	A	B	C
Physical Functioning	36.94	37.30	39.04	32.65	32.98	34.04
Role Physical	37.14	36.22	38.56	29.08	29.26	32.45
Bodily Pain	44.35	47.22	52.23	40.31	44.40	45.94
General Health	38.44	40.39	42.52	36.35	35.94	37.40
Vitality	41.26	45.31	46.28	33.98	34.26	35.64
Social Functioning	55.70	58.29	60.11	55.61	55.85	59.57
Role Emotional	38.51	38.44	40.43	37.41	36.88	37.59
Mental Health	55.46	55.22	55.66	55.35	55.32	55.83

Phase A – admission; B – discharge; C – one month after discharge. Other abbreviations as in Table 1.

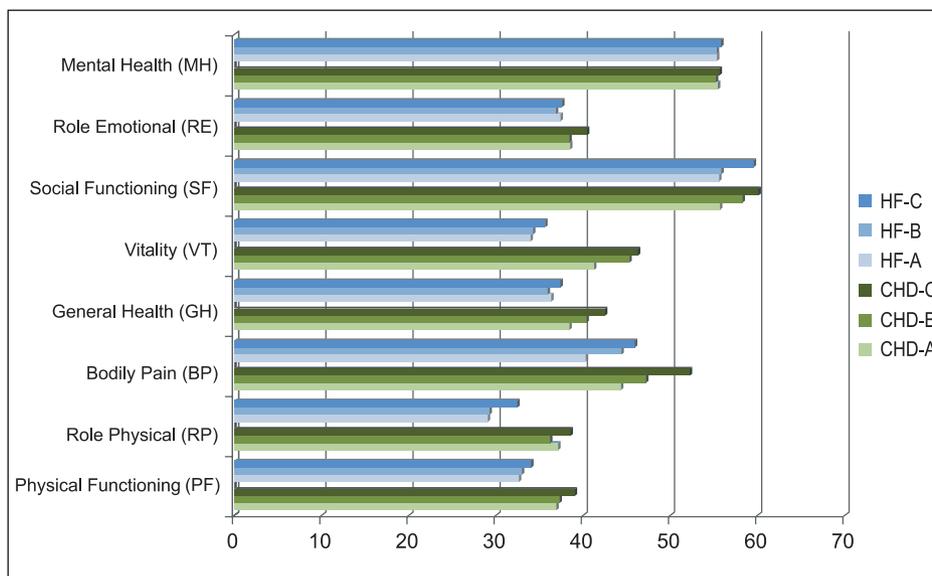


Figure 1. Mean SF-36 scores according to phase and disease. CHD – coronary heart disease; HF – heart failure; SF-36 – Short Form 36 dimensional instrument.

Table 3. EQ-5D scores and correlations between EQ-5D and Visual Analogue Scale.

	CHD		HF	
	EQ-5D	VAS	EQ-5D	VAS
Phase A	0.618	64.3	0.544	57.3
Phase B	0.705	65.5	0.616	58.8
Phase C	0.718	67.3	0.671	60.1

EQ-5D – EuroQol 5-dimensional instrument; VAS – Visual Analogue Scale. Other abbreviations as in Table 1.

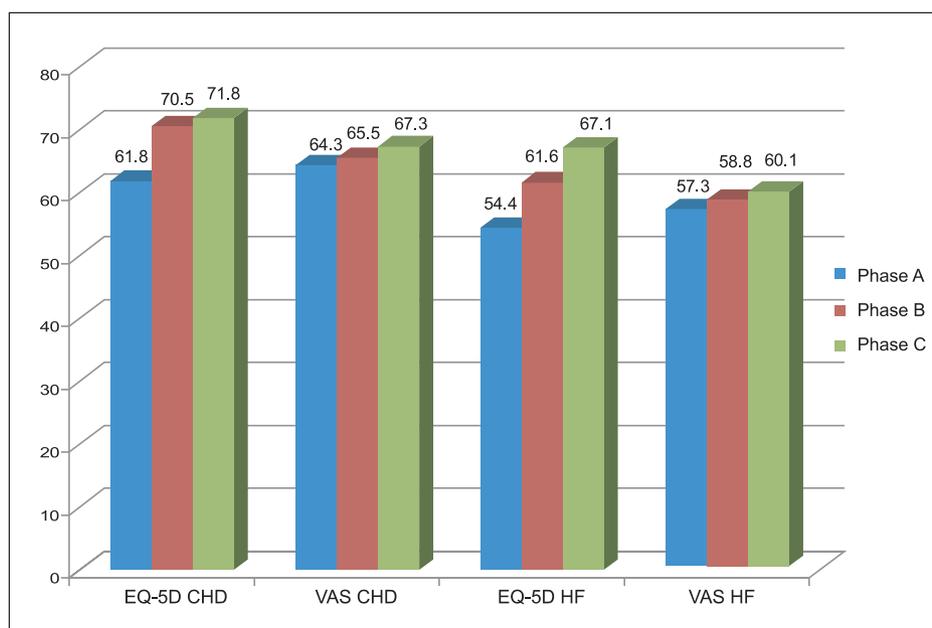


Figure 2. Mean EQ-5D and VAS scores according to phase and disease. CHD – coronary heart disease; EQ-5D – EuroQol 5-dimensional instrument; HF – heart failure; VAS – Visual Analogue Scale.

and life of patients.¹³ The latest therapies focus on life expectancy extension, but also on symptom management and improvement in physical and mental function. Thus, in assessing the therapeutic benefit from different interventions, quality of life should also be considered.¹⁴ In any case, since quality of life measurements describe the patients' self assessment and experience of their health status, they should be considered and taken into account along with traditional measurements of the physiological and biological factors of life when managing patients.^{15,16}

Several studies have revealed low quality of life scores in patients with CHD at 3 months, 6 months, 1 year and 4 years after acute myocardial infarction.¹⁷⁻¹⁹ Studies have also shown that CHD is often accompanied by mild or severe mental disorders, mainly depression and less often stress.²⁰ According to a recent meta-analysis, specific medical interventions, such as percutaneous coronary revascularisation, do not offer any benefit when compared to conservative therapy in patients with non-acute CHD in terms of mortality and disease progression.²¹ However, in a randomised trial, the trial of invasive versus medical therapy in the elderly (TIME), a great improvement in both symptom management and quality of life was measured when revascularisation was used.²² In this light, quality of life becomes a decisive factor in choosing one therapy over another.

With regard to HF patients, their health-related quality of life is worse compared with CHD and decreases as the disease progresses. A recent study showed that HF patients had 30% lower scores in all dimensions of SF-36 compared to the general population, a finding in agreement with the results of the present study.²³ In fact studies have shown that patients with HF experience a significant deterioration, not only in their physical ability, but also in their mental status, and they suffer from depression. It is notable that in a recent study patients with severe HF had similar quality of life scores in the mental health dimension compared to patients suffering from major depression.²⁴

The social functioning is also affected in HF patients. A recent study showed that the decreased social functioning due to impaired social contacts with family, relatives and friends has a negative impact on HRQL, disease progression, and mortality.²⁵ HF management, including treatment monitoring, patient education about risk factors, and self-care, has been shown to decrease both hospitalisations and mortality and to improve HRQL.²⁶

In a comparative study concerning HRQL measurement using SF-36 and other instruments in patients after acute myocardial infarction or coronary artery bypass graft, a "ceiling" phenomenon was observed in the Social Functioning and Role-Emotional scales.¹² It has been noted also with regard to SF-36 that in the Bodily Pain Scale and the Social Functioning Scale, which include only two questions, a change in the answers sometimes leads to a significant mean score change.¹² Also, some researchers and clinicians argue that the Mental Health Scale and the General Health Scale may not be sensitive to disease changes. However, a review of ten HRQL studies in patients with CHD showed that the SF-36 tool has in general good psychometric properties and is very suitable for specific populations such as the elderly.^{27,28}

In the present analysis the SF-36 quality of life instrument gave adequate measurements in patients with CHD and HF; a "ceiling" phenomenon did not appear, and the results are in line with those obtained in other studies. Also, the EQ-5D questionnaire gave results in line with those reported in the relevant literature regarding CHD and HF patients.²⁹ Studies have shown that EQ-5D may have a limited descriptive ability and poorer sensitivity to health status changes, because of the limited number of questions and answers included, compared to the SF-36 questionnaire.^{30,31} However, it has the advantage that it results in an overall assessment of health by means of an overall index. Thus, both instruments play a role in the HRQL assessment of cardiac patients. There have been several applications of the two instruments in the Greek setting.³²⁻⁴⁸ However, none was in the field covered by the present article, which illustrates the use of these instruments and supplements other research efforts aiming to evaluate cardiac patients.⁴⁹⁻⁵⁴

Conclusions

HRQL measurement gives health care providers an additional tool for the assessment of the impact of specific clinical decisions on the health status of patients, particularly those who suffer from chronic disabling diseases like CHD and HF. Notwithstanding its limitations, the present study has shown that the quality of life is very low in those suffering from CHD and HF in a specific centre in Greece, and that their status did improve marginally, but not significantly after the provision of hospital and medical care. This type of evaluation should be used for the assessment of cardiac patients, because quality of life is as important as quantity of life.

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